

**REMARKS**

Claims 1-15, 27-31, and 36-47 are pending. Claims 1-15 and 27-29 are withdrawn as being directed to non-elected subject matter. Claims 30-31 and 36-47 are under examination.

**Response to 35 U.S.C. § 103(a) Rejection**

Claims 30-31 have been rejected under 35 U.S.C. § 103(a) as being obvious over any of the following four references: (1) Jenkins, U.S. Patent No. 5,639,841 (“Jenkins”); (2) Galleguillos *et al.*, U.S. Patent No. 6,361,768 (“Galleguillos *et al.*”); (3) Blankenburg *et al.*, U.S. Patent No. 6,403,074 (“Blankenburg *et al.*”); or (4) Morschhäuser *et al.*, U.S. Patent No. 6,645,476 (“Morschhäuser *et al.*”).

As an initial matter, applicants note that this Office Action and the previous Office Action rejects claims 30-31 but the Office Action Summaries indicate that claims 30-31 *and* claims 36-47 are rejected. Applicants suspect that claims 36-47 are shown as rejected on the Office Action Summaries due to their dependence from claims 30-31 but are otherwise allowable since the Office Action does not address these claims or account for their specific recitations in the rejection. Clarification is requested.

The obviousness rejection of claims 30-31 is improper over each reference individually and over all references in combination because:

1. The references do not account for every element of the claims;
2. The art teaches away from proceeding as applicants have done; and
3. Impermissible hindsight is employed to retrace the inventors’ steps and arrive at the claimed invention.

First, the references, even in combination, do not account for every element of the claims. To establish *prima facie* obviousness, all the claim limitations must be taught or suggested by the prior art. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991); *In re Royka*, 490 F.2d 981 (CCPA 1974).

The differences between the references and the instant claims and the elements missing from the references are described below.

**Jenkins**

Jenkins does not require that (1) an anionic component and cationic component be used together, (2) it does not specify a particular ratio of anionic component to cationic component, and (3) does not require a specific amide-group-containing compound.

The instant claims are directed to an ampholytic copolymer obtainable by free-radical copolymerization of a) an anionic component and b) a cationic component. To account for this recitation, the Office Action refers to component (A) of Jenkins where it describes polymers comprising the reaction product of “about 1-99.8 weight percent of one or more nonionic, *cationic, anionic* or amphoteric monomers”(emphasis added) (*see, e.g.*, the abstract of Jenkins). Jenkins, however, does not require that both an anionic and cationic monomer be employed together—their combination is optional. In fact, Jenkins does not appear to describe any examples where both an anionic and cationic monomers are used together.

The instant claims refer to a molar ratio of compound a) (the anionic component) to compound b) (the cationic component) from 0.5:1 to less than 2:1. Jenkins *et al.*, however, does not specify any ratio of anionic component to cationic component (or even contain a single example where an anionic component and a cationic component are used together).

The instant claims include, as component c), an amide-group-containing compound selected from the group consisting of acrylamide, methacrylamide, N-vinylpyrrolidone, N-vinylcaprolactam, N-vinylformamide, N-vinylacetamide and mixtures thereof. To account for this recitation, the Office Action refers to component (B) of Jenkins, which describes “about 0-98.8 weight percent of one or more mono-ethylenically unsaturated monomers.” Since the bottom of this range is zero, component (B) is optional. The specification in column 3, lines 34-67 lists the optional mono-ethylenically unsaturated monomers envisioned by Jenkins (reproduced below).

The polymers of this invention can also contain a significant proportion of one or more monoethylenically unsaturated monomers (i.e., component (B)). The preferred monomers provide water insoluble polymers when homopolymerized and are illustrated by acrylate and methacrylate esters, such as ethyl acrylate, butyl acrylate or the corresponding methacrylate. Other monomers which can be used are styrene, alkyl styrenes, vinyl toluene, vinyl acetate, vinyl alcohol, acrylonitrile, vinylidene chloride, vinyl ketones and the like. Nonreactive monomers are preferred, those being monomers in which the single ethylenic group is the only group reactive under the conditions of polymerization. However, monomers which include groups reactive under baking conditions or with divalent metal ions such as zinc oxide may be used in some situations, like hydroxyethyl acrylate.

Other illustrative monoethylenically unsaturated monomers useful in this invention include, for example, propyl methacrylate, isopropyl methacrylate, butyl methacrylate, n-amyl methacrylate, sec-amyl methacrylate, hexyl methacrylate, lauryl methacrylate, stearyl methacrylate, ethyl hexyl methacrylate, cetyl methacrylate, cinnamyl methacrylate, oleyl methacrylate, ricinoleyl methacrylate, hydroxy ethyl methacrylate, hydroxy propyl methacrylate, vinyl propionate, vinyl butyrate, vinyl tert-butylate, vinyl caprate, vinyl stearate, vinyl laurate, vinyl oleate, vinyl methyl ether, vinyl ethyl ether, vinyl n-propyl ether, vinyl iso-propyl ether, vinyl n-butyl ether, vinyl iso-butyl ether, vinyl iso-octyl ether, vinyl phenyl ether, a-chlorovinyl phenyl ether, vinyl/naphthyl ether, methacryonitrile, *acrylamide, methacrylamide, N-alkyl acrylamides, N-aryl acrylamides, N-vinyl pyrrolidone, N-vinyl-morpholinones, N-vinyl-oxazolidone, N-vinyl-imidazole* and the like including mixtures thereof. (emphasis added)

From this long list of mono-ethylenically unsaturated monomers, the Office Action identifies three that are encompassed by the instant claims (i.e., acrylamide, methacrylamide, and N-vinyl pyrrolidone). There do not appear to be any examples in Jenkins employing any of these specific mono-ethylenically unsaturated monomers as component (B).

**Galleguillos et al.**

Galleguillos *et al.* does not account for the claimed ratio of anionic component to cationic component but teaches away from the claimed ratio.

The instant claims refer to a molar ratio of compound a) (the anionic component) to compound b) (the cationic component) from 0.5:1 to less than 2:1. Galleguillos *et al.* describes a polymer or copolymer formed by an anionic component to cationic component in a very broad range of **2:1 to 1:450**, which does not overlap with the claimed range. Furthermore, Galleguillos *et al.* specifically teaches away from claimed range by indicating that a large excess of cationic monomers over anionic monomers should be used. *See, e.g.*, Col. 12, lines 45-59. The specification explains:

A preferred ratio of cationic monomers to anionic monomers is from about 2 to about 16, with the ratio of about 3 to 16 being further preferred. Selecting a ratio within this range has two advantages. First, it facilitates polymerization. The cationic and anionic monomers form inter and intra salt units which cause the copolymer to precipitate from the solvent in the form of a fine powder. This facilitates formation of the copolymer by precipitation polymerization. Second, the presence of anionic and cationic groups in the same polymeric molecule renders the copolymer compatible with cationic, anionic, and amphoteric surfactants typically used in cosmetic, household, cleaning, pharmaceutical, and other formulations.

See Col. 12, lines 47-59.

Here, the specification expressly provides that the preferred ratio of cationic monomers to anionic monomers is from about 2 to about 16 with the most preferred ratio from about 3 to about 16. It even teaches that this excess amount of cationic monomer imparts specific advantages. In fact, every example of Galleguillos *et al.* has the molar amount of cationic compound far exceeding the molar amount of anionic compound, which is far outside the range of the instant claims. The data from the examples is summarized in the following table.

Example	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Anionic Component (MAA)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Cationic Component (MDAPMA)	3.1	6.43	6.43	8.19	11.27	6.43	6.43	6.42	6.42	6.42	6.43	6.43	7.77	6.43
Ratio	<b>1:3</b>	<b>1:6</b>	<b>1:6</b>	<b>1:8</b>	<b>1:11</b>	<b>1:6</b>	<b>1:8</b>	<b>1:6</b>						

**Blankenburg et al.**

Blankenburg *et al.* does not require that (1) an anionic component and cationic component be used together, (2) it does not specify a particular ratio of anionic component to cationic component, and (3) does not require a specific amide-group-containing compound.

As explained above, the instant claims are directed to an amphotropic copolymer obtainable by free-radical copolymerization of a) an anionic component and b) a cationic component. Blankenburg *et al.*, however, describes polymers having polysiloxane groups, which are special graft polymers obtained by polymerization of monomers selected from a large group of diverse ethylenically unsaturated monomers in the presence of a polyether polysiloxane (which is not ethylenically unsaturated). Blankenburg *et al.* does not specify or even suggest any polymers obtained from *both* cationic and anionic monomers.

The instant claims refer to a molar ration of compound a) (the anionic component) to compound b) (the cationic component) from 0.5:1 to less than 2:1. Blankenburg *et al.*, however, does not specify any ratio of anionic component to cationic component (or even suggest any polymers obtained from *both* cationic and anionic monomers).

The instant claims include an amide-group-containing compound be included with the anionic component and cationic compound where the amide-group-containing compound is selected from the group consisting of acrylamide, methacrylamide, N-vinylpyrrolidone, N-vinylcaprolactam, N-vinylformamide, N-vinylacetamide and mixtures thereof. Blankenburg *et al.*, however, does not specify that an amide-group containing compound necessarily be present with the anionic and cationic component.

To arrive at the claimed invention, the Office Action merely picks and chooses specific monomers that fall within the scope of the instant claims from a laundry list of all ethylenically unsaturated monomers described within Blankenburg *et al.* and concludes it would be obvious to pick an anionic monomer, a cationic monomer (in a particular ratio to each other) and combine them with a specific amide-group-containing compound just because each component can be located someplace in the reference.

Morschhäuser et al.

Like Blankenburg *et al.* discussed above, Morschhäuser *et al.* does not (1) specify that an anionic component and cationic component be employed together, (2) it does not specify a ratio for which an anionic compound and cationic component be used, and (3) does not suggest that an amide-group containing compound necessarily be present with the anionic and cationic component. Again, the Office Action merely picks and chooses specific monomers that fall within the scope of the instant claims from a laundry list of all ethylenically unsaturated monomers and concludes it would be obvious to use all three components together in the claimed ratios even though the reference does not describe using them together or suggest they should be used in any particular ratio.

As mentioned above, the art teaches away from proceeding as applicants have done. Where a reference teaches away from and discourages a person skilled in the art from doing what is claimed, the reference established “the very antithesis of obviousness.” *In re Buehler* 185 USPQ 781 (CCPA 1975). Galleguillos *et al.*, the only reference that suggests using an anionic component together with a cationic component specifically teaches away from using them in the ratios claimed by applicants. Unlike the instant claims where the amount of anionic component is similar to the amount of cationic component, Galleguillos *et al.* describes a range that does not overlap with the claimed range and specifically encourages using a large excess of cationic component. The specification expressly provides that the preferred ratio of cationic monomers to anionic monomers is from about 3 to about 16, and specifically teaches that this excess amount of cationic monomer imparts specific advantages (thereby teaching away from the lower ranges claimed by applicants). Finally, every example of Galleguillos *et al.* has the molar amount of cationic compound far exceeding the molar amount of anionic compound (as much as 11-fold more cationic component). A prior art reference that teaches or suggests a preferred embodiment different from the claimed subject matter weighs against a determination of obviousness. *In re Baird*, 16 F.3d 380, 382-83, (Fed. Cir. 1994); See also MPEP 2144.08(II)(A)(4).

Contrary to the teachings of Galleguillos *et al.*, applicants discovered that the claimed combinations in the claimed ranges impart a myriad of beneficial properties to cosmetic and pharmaceutical compositions. For instance, the claimed polymers form tack-free smooth films, have good setting action, are suitable in the preparation of products in the form of gels, and are compatible with a large number of different polyelectrolytes. *See, e.g.*, the specification on page 3, lines 23-35. The many examples presented in the specification demonstrate the claimed polymers' use, for instance, in the manufacture of conditioner shampoos (examples 80-130), hair gels with an anionic thickeners (examples 181-230), hair gels with further setting polymers and thickeners (examples 231-280), anionic self-thickening hair gels (examples 281-330), and skin cosmetics (examples 331-380). The host of beneficial properties is especially surprising considering that Galleguillos *et al.* suggests that a much different ratio (than the claimed ratio) of cationic/anionic compounds achieves optimum results.

Finally, the obviousness rejection improperly relies on hindsight to piece together a path to obviousness. The Federal Circuit recently issued a decision that speaks to situations like this where a conclusion of obviousness was based on retracing the inventors' steps with the benefit of hindsight. *Ortho-McNeil Pharm., Inc. v. Mylan Lab., Inc.*, 520 F.3d 1358 (Fed. Cir. 2008). The court explained, based on the language of 35 U.S.C. § 103(a), that this type of reasoning is always inappropriate since an obviousness analysis is based on "the subject matter as a whole" to ascertain if it "*would have been obvious at the time of the invention was made.*" *Id.* at 1364 (emphasis in original). The Court stated that in retrospect, the inventors' path to the invention may seem to follow logical steps, "but at the time of the invention, the inventor's insights, willingness to confront and overcome obstacles, and yes, even serendipity, cannot be discounted." *Id.*

The only way to arrive at the claimed invention from the cited references is to work backwards from the inventors' disclosure and proceed in direct contradiction of Galleguillos *et al.* One must specifically select (1) an anionic compound from a laundry list of compounds, (2) a cationic compound from a laundry list of compounds, and (3) a specific amide-group-containing compound from a laundry list of compounds. Then, one must determine to use the

anionic component and the cationic component within the claimed ratios even though Galleguillos *et al.* teaches away from the claimed ratios.

The Supreme Court has been clear that an obviousness rejection must provide “some articulated reasoning with some rationale underpinning to support the legal conclusion of obviousness.” *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 127 S.Ct. 1727, 1741 (2007). It must “identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does,” *Id.* And, the examiner must make “explicit” this rationale of “the apparent reason to combine the known elements in the fashion claimed,” including a detailed explanation of “the effects of demands known to the design community or present in the marketplace” and “the background knowledge possessed by a person having ordinary skill in the art.” *Id.* Anything less than such an explicit analysis may not be sufficient to support a *prima facie* case of obviousness.

In sum, the rejection is improper and should be withdrawn because (1) the references do not account for every element of the claims, (2) the art teaches away from proceeding as applicants have done, and (3) hindsight is employed to retrace the inventors’ steps and arrive at the claimed invention without any articulated reasoning to support a conclusion of obviousness.

In view of the above, consideration and allowance are respectfully solicited.

In the event the Examiner believes an interview might serve in any way to advance the prosecution of this application, the undersigned is available at the telephone number noted below.

The Office is authorized to charge any necessary fees to Deposit Account No. 22-0185.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 13111-00023-US from which the undersigned is authorized to draw.

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Respectfully submitted,

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